

PROCEEDINGS
OF THE
BIOLOGICAL SOCIETY OF WASHINGTON

SOME NEW WESTERN PLANTS AND THEIR COLLECTORS.

BY AVEN NELSON.

Relatively speaking there are a considerable number of men who are interesting themselves in the flora of the Rocky Mountains. These mountain fastnesses still possess miles upon miles of untouched area so far as botanical work is concerned. Some of the collectors are at work merely for the personal pleasure they get out of the field work and from this contact with nature in a region still largely unchanged by the encroachments of agriculture upon it. Besides these enthusiasts there are others who represent also the interest of the educational institutions of this part of the world. It may be interesting to know something of the work and location of all of these. There is no attempt here to give a complete list, mention being made merely of those with whom the writer has recently come into contact in connection with the work that he is endeavoring to do at the Rocky Mountain Herbarium.

Dr. P. B. Kennedy, of the University of Nevada at Reno, is very assiduously at work upon the plants of the Great Basin and of certain other more restricted localities in his State. He is making a special study of certain groups and will be heard from when such studies shall have been completed.

What Dr. Kennedy is doing for Nevada, Dr. Francis Ramaley, with his corps of assistants, of the University of Colorado, at Boulder, is doing for his State. Some very interesting ecological studies have been made not only by Dr. Ramaley but also by Dr. T. D. A. Cockerell of that institution. The latter, though professedly an entomologist, is known almost as well for his general studies in science and particularly for his discriminating observations and publications in botanical lines. Their collections during the past season were unusually extensive and varied.

In Utah we have a school man in the person of A. O. Garrett, the science teacher in the Salt Lake High School, who is well known among botanists because of his collection and distribution of the parasitic fungi of his State. He has also made extensive collections of the seed plants and many species of interest, as well as some novelties, are thus being made known.

New Mexico has for many years been a land of great interest. Prof. E. O. Wooton and his co-workers are finding it so to-day. The Agricultural College, at Mesilla Park, is getting together a collection that will need to be studied by anyone who would know the flora of that region.

Professor Elias Nelson, whose excellent work upon the two genera *Phlox* and *Antennaria* has not been forgotten, is at work in Idaho. While he is not now engaged professionally in botanical work, he has lost none of his interest in it. Always alert to the best things about him, he is gradually accumulating some choice examples of the Idaho plants. Though connected with the Experiment Station at Moscow, his address for the present is at Twin Falls.

One naturally expects that the men who are connected with educational institutions will show a degree of interest commensurate with the work for which their departments stand. Pleasing as this is, it is perhaps more gratifying to see that the interest of those who are engaged in other lines of work is scarcely less than that of the professional botanists. Among this latter class I wish to mention the following:

Mr. J. Lunell, M. D., of Leeds, North Dakota, though his professional duties demand much time, has found the leisure for studying his flora in a most critical way and of substantiating his studies by very excellent specimens.

It is well known that Mr. George E. Osterhout is a careful, systematic botanist, as is attested by his papers published from time to time. It is perhaps not so well known that his plant studies are his recreation and that his main business is a commercial one in the little town of New Windsor, Colorado, where he has resided for many years.

Colorado has yet another collector in Mr. Earl L. Johnston who seeks out the unvisited nooks in the Colorado mountains and brings back some of the choice things that are there produced. Mr. Johnston's home is at Evans, Colorado.

Colorado has been the collecting ground for scores of tourists during the last quarter century, but even so, it is quite likely that her flora is still only partially known. Among those who occasionally go to the West to spend a summer's vacation in the delightful work of collecting, one should mention Mr. W. S. Cooper, of Detroit, Michigan (at present at Johns Hopkins). For several years past some portion of his summer's vacation has been spent in the Rocky Mountains of Colorado, Utah or Wyoming.

Several of the men mentioned above have kindly shared their plants with the writer, who has found much pleasure in joining these collectors in their studies. As a result of these studies it has seemed necessary to designate certain specimens as new species. The descriptions of these proposed species are offered below. The types are all deposited in the Rocky Mountain Herbarium.

***Fritillaria lunellii* sp. nov.**

Bulb of many rather thin scales, 6-12 mm. long: stem slender, 2-4 dm. high: leaves 4-6, distributed in one of the following ways,—all in one verticil; all but one in the verticil; or in two verticils of 2-4 leaves each;—the lowest leaves always above the middle of the stem, broadly linear-lanceolate or oblong-lanceolate, tapering gradually to the obtusish apex, 3-4 cm. long: floral bract similar to the leaves but smaller (2-3 cm. long): peduncle rather slender, 7-12 cm. long: flowers one (rarely two), drooping on short slender pedicel: perianth segments narrowly oblong or oblong-lanceolate (in shape much like the leaves), obtusish, 2-3 cm. long, twice as long as the slender filaments, dark-purple on the outside, purple mottled with yellow within: anthers large, oval: style cleft only one-third its length or less: the thickened linear stigma somewhat recurved: capsules* pyriform or broadly ovoid, about 15 mm. long, smooth, furrowed rather than angled at the sutures.

I feel that it is only fitting to name this in honor of its discoverer, who has not only supplied me with the specimens but has pointed out many of the characters given above. Type bears the accession No. 56,200. It was collected in the timbered foothills of Mount Hood, Wasco Co., Oregon, by J. Lunell, M. D., of Leeds, North Dakota.

***Roripa pectinata* sp. nov.**

Glabrous winter annual, with vertical taproot, most of the plants branching freely, beginning to blossom when quite small but in fruit 1-3 dm. high: winter crown leaves small, oblanceolate, from entire to pectinately toothed, withering early: those of the stem and branches larger, 2-6 cm.

* There is a possibility of error as to the capsule since the single fruiting specimen was secured at another time.

long, mostly oblanceolate in outline but deeply pectinately toothed or lobed: the yellow flowers small and crowded but the naked racemes in fruit stout and half the length of the plant: sepals oval, yellowish with membranous margins, slightly exceeding the oblong-spatulate petals: silique broadly linear, abruptly pointed by the almost sessile stigma, slightly curved, 12-16 mm. long, ascending, on divaricate pedicels less than half as long as the siliques: seeds rather large, pale, crowded, minutely impressed punctate.

Most nearly allied to *R. curvisilequa* (Hook.) Bessey which differs from this in being minutely pubescent or subscabrous, with petals exceeding the sepals, siliques falcate and linear, somewhat torulose, and the seeds small, smooth and somewhat triquetrous.

The leaves in young plants of the species now proposed are strikingly pectinate, the linear lobes either entire or with a few linear teeth. This species blossoms very early in the season and is in full fruit by May first in the type locality. Its ally comes into blossom and fruit much later in the season (June and July). Collected at The Dalles, Oregon, by Dr. J. Lunell, April 12 and April 16, 1903. The latter is the type and is deposited under the accession No. 54,984. Secured again by the same collector, in mature condition, May 4, 1906, at the type station.

Sidalcea sylvestris.

Perennial from a rhizome which is sometimes thickened and corm-like: stems more or less clustered, mostly simple, slender, 5-10 dm. high, green, inconspicuously and very sparsely pubescent below with short forked hairs, the inflorescence minutely stellate: leaves nearly or quite glabrous, the slender petioles somewhat hirsute with branched hairs: radical leaves 5-7 lobed, divided or parted, each lobe mostly 3-toothed: stem-leaves palmately 5-7 foliate: leaflets linear, with conspicuous midnerve, 7-12 cm. long, 6-10 mm. broad, tapering gradually to the acute ends: bracts paired, linear, shorter than the pedicel, the lower sometimes accompanied by a long, narrowly linear leaf: raceme simple, slender, at last quite open: calyx-lobes triangular-lanceolate, fully as long as the campanulate tube: petals spatulate-oblong, 15-18 mm. long, twice as long as the calyx, of a delicate pale lavender color: mature fruits not at hand.

Allied in some ways to both *S. campestris* and *S. Oregana* Greene. The collector, Dr. J. Lunell, surmised that it might be a hybrid, but it does not seem to the writer to have enough of the characters of either to warrant that conclusion. It is a woodland species secured near Wheatland, in Yamhill Co., Oregon. The type bears the accession No. 52,562.

Zaushneria garrettii sp. nov.

Caudex with slender woody branches: stems several, simple, slender, erect from somewhat decumbent bases, 1.5-3 dm. high, with pale glabrous shreddy bark below, upward greener and softly hirsute, the hairs long and widely spreading: leaves sessile, crowded, elliptical, oval or ovate, 2-3 cm. long, the margin with small rather remote and irregular teeth, green but sparsely soft-hirsute, venation pinnate, the primary veins few

the secondary veins obscure or indiscernible: flowers few, in a terminal crowded cluster: calyx puberulent, its tube deep-red, 12-16 mm. long, cylindric, with slightly dilated base and throat, lobes half as long, greenish, triangular-lanceolate, callous tipped: petals thick, deep-red, obovate-cordate, slightly exceeding the calyx-lobes: stamens barely exserted; pollen grains unusually large: stigma tardily well exserted: ovary and capsule minutely glandular-pubescent on the angles.

This species belongs in the *Z. latifolia* group but can scarcely be confused with the typical Californian form of that species.

Secured by A. O. Garrett, August 28, 1906, in Big Cottonwood Canon, Salt Lake County, Utah; type No. 2031.

***Mertensia micrantha* sp. nov.**

Stems clustered, spreading, 2-3 dm. long, rather slender, glabrous or nearly so: leaves dark green and seemingly glabrous but under a lens minutely appressed-hispid on both sides, not pustulate, 3-7 cm. long; the uppermost lanceolate, more narrowly so downward where they become smaller and linear: panicle leafy, many-flowered; flowers small; calyx about 3 mm. long, its lobes linear-lanceolate, ciliate-margined, longer than the campanulate tube; corolla about 10 mm. long, its limb as long as the tube, narrowly campanulate, with short suborbicular lobes: the stamens inserted in the throat and reaching to the lobes; the filaments as broad or broader than the anthers and nearly as long: style equalling the stamens.

This seems to be a good species in the *Lanceolatae* and not very nearly allied to any of the described species.

It was secured by Dr. Francis Ramaley and Mr. W. W. Robbins, on Sugar-loaf Mountain, July 14, 1906. Type No. 1750.

***Douglasia johnstoni* sp. nov.**

A depressed perennial, the caudex with few, slender, naked branches not rising above the soil, each branch terminating in a close rosulate cluster of leaves less than 1 cm. high and broad: leaves minute, 3-6 mm. long, closely imbricated, glabrous except for a sparse marginal fringe of white ciliae, mostly oblong, subacute, somewhat keeled: peduncles rising singly from the center of each rosula, sparsely ciliate-hirsute as is also the inflorescence: 8-10 mm. long: umbel crowded, few-flowered (3-8): bracts lance-linear, as long as the pedicel and calyx: pedicels nearly equal, very short: calyx campanulate, its lobes lanceolate, subacute, as long as the tube: corolla-lobes oblong obovate, as long as the tube, reflexed and withering-persistent over the distended tube: stamens inserted just above the middle of the tube, the large anthers extending to the narrowed orifice of the throat: capsule sessile, globose.

This well marked species I believe is the first *Douglasia* reported from Colorado. It was secured by Mr. Earl Lynd Johnston, August 16, 1906, near the foot of Mt. Washington, on the trail to Chasm Lake, Long's Peak. It bears the No. 339.

Coleosanthus garrettii sp. nov.

Apparently tufted, with several assurgent herbaceous stems, leafy, bright green and glabrous (a minute puberulence under a good lens): leaves very thin, from very broadly to narrowly triangular-ovate, mostly irregularly and sharply dentate, acute at apex, the base cuneate, rounded, truncate or subcordate on the same stem, 4-8 cm. long, on slender petioles 1.5-3 cm. long: heads on slender ascending branchlets from the uppermost axils, few-several in each cluster, on slender pedicels 8-15 mm. long: involucres campanulate, 10-14 mm. high, subtended by a few linear or acuminate bractlets; the bracts in 3-4 series, greenish, with about 5 pale nerves, scarious-margined, obtuse or abruptly acute, nearly glabrous: achenes brown, glabrous or nearly so, finely ribbed.

This species is dedicated to the diligent student of the Utah flora, the teacher of botany in the Salt Lake City High School, Mr. A. O. Garrett. The type is No. 1061, from City Creek Canon, Salt Lake County, Utah, August 5, 1904.

Machaeranthera latifolia sp. nov.

Perennial from woody roots and short branched caudex: stems few-several, slender, erect, 1.5-2.5 dm. high, minutely puberulent: leaves minutely puberulent (the upper face nearly glabrous), mostly entire, rarely with a few small spinulose teeth, generally 3-veined from the base and somewhat reticulate above: the basal and lower stem leaves from broadly oblanceolate to obovate, 2-3 cm. long, tapering into a short, narrowly margined petiole; the upper stem leaves sessile or nearly so, those of the inflorescence reduced and becoming bract-like: heads few, corymbose, relatively large, 8-14 mm. high: involucre campanulate, its bracts in 5-6 series, oblanceolate or oblong-lanceolate, the dark-green acute or acuminate tips ultimately reflexed, minutely glandular puberulent (the peduncles puberulent but scarcely glandular): rays blue with a slight violet tinge: achenes sparsely and obscurely pubescent, shorter than the pappus.

This species has been under observation by Mr. Garrett for two years. It is represented by his Nos. 1933 and 1594 as type and co-type respectively, one collected in August, 1905, the other in August, 1906, in Big Cottonwood Canon, Salt Lake County, Utah.

Machaeranthera paniculata.

A perennial allied to the preceding: stems several, slender, erect, 4-8 dm. high, with branching paniculate inflorescence, minutely puberulent throughout, somewhat glandular-viscid on the tips of the involucral bracts only: leaves bright green, from oblanceolate to oblong-linear, 3-6 cm. long; all the lower tapering to margined petioles: the upper nearly sessile and passing into the gradually narrowed and reduced foliar bracts: bracts numerous, linear, the uppermost subulate: rays of the panicle with 1-3 heads: involucre turbinate, 10-14 mm. high; its bracts in 5-7 series, linear, very pale (white), terminated by a dark-green, viscid reflexed tip: rays

long, slender, blue or purple-tinged: achenes broadly linear, with minute sparse pubescence.

This handsome conspicuous species was collected by Mr. Garrett on the mountains of Parley's Canon, Utah, September 13, 1906. Type No. 2083.

Antennaria solstitialis J. Lunell sp. nov.

Stems slender, floccose-woolly, 5-12 cm. high, surculose, broadly tufted: stolons 1-3 cm. long: leaves silvery appressed-pubescent on both sides: the basal oblance-spatulate, 5-6 mm. long; the stem leaves with looser pubescence, 8-14 mm. long: heads 5-7, in a glomerate capitate cluster; involucre 4-5 mm. high, obconical or campanulate, each head with a linear-acuminate bract as long or longer than the head; involucral bracts from oblong (exterior) to suborbicular (within).

In the type locality it comes into blossom late in June, and occurs sparingly in dry, sunny situations. The other species occurring there are *A. aprica* Greene, which blossoms two weeks earlier, and *A. campestris* Rydb. which is four weeks earlier. *A. microphylla* Rydb. also occurs, but from that species, its nearest relative, *A. solstitialis* differs in its smaller leaves, shorter stolons, the congested inflorescence, and the scarcity of pistillate plants (none have yet been found). *A. microphylla* has narrowly oblong heads, at least in the fertile plant.

The above characters have been taken from manuscript supplied by the collector, Dr. J. Lunell, who secured the specimens near Leeds, N. D. The type sheet bears the accession No. 39,137.

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